Low-GWP Refrigerants Listing Rule

- EPA is developing a proposed rule that would expand the list of low-GWP, climate-friendly alternatives for air conditioning and refrigeration applications
  - Add alternatives particularly where current options are limited
  - Since these refrigerants are flammable, EPA is planning to propose appropriate use conditions that adopt safety standards

Refrigerant	GWP	End Use and Application EPA is Considering					
		Household Refrigerators	Retail refrigerator stand-alone	Vending	Very Low Temp Ref	Heat Transfer	Home AC-Self-contained
Ethane	6				√	√	
Iso-butane*	8		√	√			
Propane*	3	√		√			√
R-441A* (HC blend)	<5		√	√			√
HFC-32	675						√

*listed 12/2011 for other refrigeration applications

EXPEDITED EPA APPROVAL OF THE R-32 SNAP PETITION WOULD ADVANCE THE PRESIDENT'S CLIMATE ACTION PLAN

The President's Climate Action Plan announced on June 25, 2013 contains key elements that would be significantly advanced by EPA's approval of Daikin's pending R-32 SNAP petition. Section IV of the Domestic portion of the Plan, "Reducing Other Greenhouse Gas Emissions," states that:

> Moving forward, the Environmental Protection Agency will use its authority through the Significant New Alternatives Policy Program to encourage private sector investment in low-emissions technology by identifying and approving climate-friendly chemicals while prohibiting certain uses of the most harmful chemical alternatives.

The President's Climate Action Plan, at 10. Daikin's SNAP petition explains that R-32 yields substantial climate benefits as a refrigerant in air conditioning and heat pump applications. As noted in Daikin's petition, R-32 has one-third of the global warming potential (GWP) of R-22 (an HCFC that it will replace), and R-32 systems perform with 70% of the charge volume required for systems that use R-410A (a widely used, high-GWP HFC). Daikin's petition also noted that R-32's energy performance is 2-3% better than that of R-22 and R-410A. Due to its much lower GWP, its reduced charge size compared to the refrigerants it will replace, and its high energy efficiency, R-32 reduces CO_2-equivalent emissions by up to 75% in its applications.

Because of these characteristics, the use of R-32 as a refrigerant will result in a substantial reduction of direct and indirect greenhouse gas emissions related to air conditioners and heat pumps. **Daikin's R-32 SNAP petition provides EPA with an immediate opportunity to demonstrate the use of its authority under the SNAP program to reduce climate impacts as contemplated in the President's Climate Action Plan.**

The International portion of the President's Climate Action Plan, entitled "Lead International Efforts to Address Global Climate Change," provides in Section II that "[a]t the Montreal Protocol, we are leading efforts in support of an amendment that would phase down HFCs[.]" *Id.*, at 21. The proposed North American HFC Phase-Down Amendment to the Montreal Protocol referred to in the Climate Action Plan would effectively phase out higher-GWP HFCs while allowing the use of lower-GWP HFCs such as R-32 that mitigate climate change. **EPA's approval of any part of Daikin's R-32 SNAP petition would support approval of the North American HFC Amendment by demonstrating that the United States believes there is a useful role for beneficial lower-GWP HFCs in addressing global climate change.**

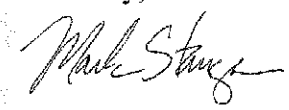
Also, many developing countries are currently deciding what refrigerants they will select to replace HCFCs in their air conditioning sectors, and EPA approval of any part of the R-32 SNAP petition would encourage some of these countries to consider adopting this lower climate impact technology. **Because of its potential effect on consideration of the North American HFC Amendment as well as its influence on the decisions of developing countries that are now determining alternative technologies to replace HFCs, expedited EPA action on the R-32 SNAP petition would also support the President's Climate Action Plan by demonstrating international leadership on addressing global climate change.**

CONCLUSION

EPA's approval of Daikin's R-32 SNAP petition would materially advance the President's Climate Action Plan by reducing both direct and indirect climate-forcing gas emissions domestically, and by demonstrating the use of the SNAP program to implement the Climate Action Plan. Approving the R-32 SNAP petition would also demonstrate U.S. efforts to address climate change internationally by encouraging support for the North American HFC Amendment to the Montreal Protocol, and by influencing developing countries' decisions about selecting HCFC replacements in their air conditioning sectors. For these reasons, Daikin requests that you direct the relevant staff in the Office of Air and Radiation to give high priority to, and take expedited action to propose approval of, any part of Daikin's R-32 SNAP petition.

Please do not direct you staff to respond to this letter. Daikin prefers that the EPA staff spend its time completing the proposal to approve Daikin's R-32 SNAP petition instead of preparing a reply to controlled correspondence. Thank you very much for your attention and for your assistance with this matter.

Sincerely,

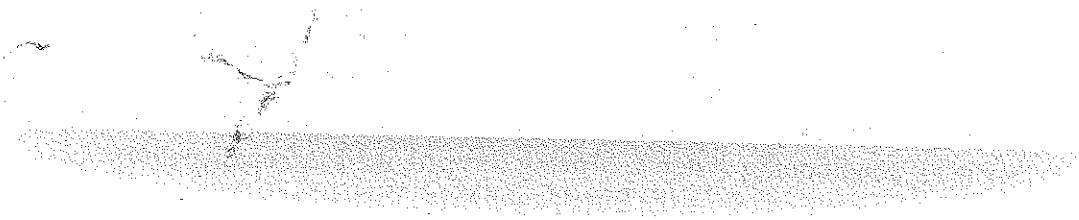


Mark V. Stanga
for Daikin U.S. Corporation

cc:

Janet McCabe
Drusilla Hufford
Cindy Newburg
Margaret Sheppard
SNAP Document Control Officer

THE PRESIDENT'S CLIMATE ACTION PLAN



Executive Office of the President

June 2013

THE WHITE HOUSE
WASHINGTON

building owners and public housing agencies to cut energy waste. In addition, the Administration is launching the Better Buildings Accelerators, a new track that will support and encourage adoption of State and local policies to cut energy waste, building on the momentum of ongoing efforts at that level.

IV. Reducing Other Greenhouse Gas Emissions

Curbing Emissions of Hydrofluorocarbons: Hydrofluorocarbons (HFCs), which are primarily used for refrigeration and air conditioning, are potent greenhouse gases. In the United States, emissions of HFCs are expected to nearly triple by 2030, and double from current levels of 1.5 percent of greenhouse gas emissions to 3 percent by 2020.

To reduce emissions of HFCs, the United States can and will lead both through international diplomacy as well as domestic actions. In fact, the Administration has already acted by including a flexible and powerful incentive in the fuel economy and carbon pollution standards for cars and trucks to encourage automakers to reduce HFC leakage and transition away from the most potent HFCs in vehicle air conditioning systems. Moving forward, the Environmental Protection Agency will use its authority through the Significant New Alternatives Policy Program to encourage private sector investment in low-emissions technology by identifying and approving climate-friendly chemicals while prohibiting certain uses of the most harmful chemical alternatives. In addition, the President has directed his Administration to purchase cleaner alternatives to HFCs whenever feasible and transition over time to equipment that uses safer and more sustainable alternatives.

Reducing Methane Emissions: Curbing emissions of methane is critical to our overall effort to address global climate change. Methane currently accounts for roughly 9 percent of domestic greenhouse gas emissions and has a global warming potential that is more than 20 times greater than carbon dioxide. Notably, since 1990, methane emissions in the United States have decreased by 8 percent. This has occurred in part through partnerships with industry, both at home and abroad, in which we have demonstrated that we have the technology to deliver emissions reductions that benefit both our economy and the environment. To achieve additional progress, the Administration will:

- **Developing an Interagency Methane Strategy:** The Environmental Protection Agency and the Departments of Agriculture, Energy, Interior, Labor, and Transportation will develop a comprehensive, interagency methane strategy. The group will focus on assessing current emissions data, addressing data gaps, identifying technologies and best practices for reducing emissions, and identifying existing authorities and incentive-based opportunities to reduce methane emissions.

- **Pursuing a Collaborative Approach to Reducing Emissions:** Across the economy, there are multiple sectors in which methane emissions can be reduced, from coal mines and landfills to agriculture and oil and gas development. For example, in the agricultural sector, over the last three years, the Environmental Protection Agency and the Department of Agriculture have worked with the dairy industry to increase the adoption of methane digesters through loans, incentives, and other assistance. In addition, when it comes to the oil and gas sector, investments to build and upgrade gas pipelines will not only put more Americans to work, but also reduce emissions and enhance economic productivity. For example, as part of the Administration's effort to improve federal

LEAD INTERNATIONAL EFFORTS TO ADDRESS GLOBAL CLIMATE CHANGE

The Obama Administration is working to build on the actions that it is taking domestically to achieve significant global greenhouse gas emission reductions and enhance climate preparedness through major international initiatives focused on spurring concrete action, including bilateral initiatives with China, India, and other major emitting countries. These initiatives not only serve to support the efforts of the United States and others to achieve our goals for 2020, but also will help us move beyond those and bend the post-2020 global emissions trajectory further. As a key part of this effort, we are also working intensively to forge global responses to climate change through a number of important international negotiations, including the United Nations Framework Convention on Climate Change.

I. Working with Other Countries to Take Action to Address Climate Change

Enhancing Multilateral Engagement with Major Economies: In 2009, President Obama launched the Major Economies Forum on Energy and Climate, a high-level forum that brings together 17 countries that account for approximately 75 percent of global greenhouse gas emissions, in order to support the international climate negotiations and spur cooperative action to combat climate change. The Forum has been successful on both fronts – having contributed significantly to progress in the broader negotiations while also launching the Clean Energy Ministerial to catalyze the development and deployment of clean energy and efficiency solutions. We are proposing that the Forum build on these efforts by launching a major initiative this year focused on further accelerating efficiency gains in the buildings sector, which accounts for approximately one-third of global carbon pollutions from the energy sector.

Expanding Bilateral Cooperation with Major Emerging Economies:
From the outset, the Obama Administration has sought to intensify bilateral climate cooperation with key major emerging economies, through initiatives like the U.S.-China Clean Energy Research Center, the U.S.-India Partnership to Advance Clean Energy, and the Strategic Energy Dialogue with Brazil.

We will be building on these successes and finding new areas for cooperation in the second term, and we are already making progress: Just this month, President Obama and President Xi Jinping of China reached an historic agreement at their first summit to work to use the expertise and institutions of the Montreal Protocol to phase down the consumption and production of HFCs, a highly potent greenhouse gas. The impact of phasing out HFCs by 2050 would be equivalent to the elimination of two years' worth of greenhouse gas emissions from all sources.

Combatting Short-Lived Climate Pollutants: Pollutants such as methane, black carbon, and many HFCs are relatively short-lived in the atmosphere, but have more potent greenhouse effects than carbon dioxide. In February 2012, the United States launched the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollution, which has grown to include more than 30 country partners and other key partners such as the World Bank and the U.N. Environment Programme. Major efforts include reducing methane and black carbon from waste and landfills. We are also leading through the Global Methane Initiative, which works with 42 partner countries and an extensive network of over 1,100 private sector participants to reduce methane emissions.

to build on this progress as well as focus our efforts on combining our public resources with smart policies to mobilize much larger flows of private investment in low-emissions and climate resilient infrastructure.

II. Leading Efforts to Address Climate Change through International Negotiations

The United States has made historic progress in the international climate negotiations during the past four years. At the Copenhagen Conference of the United Nations Framework Convention on Climate Change (UNFCCC) in 2009, President Obama and other world leaders agreed for the first time that all major countries, whether developed or developing, would implement targets or actions to limit greenhouse emissions, and do so under a new regime of international transparency. And in 2011, at the year-end climate meeting in Durban, we achieved another breakthrough: Countries agreed to negotiate a new agreement by the end of 2015 that would have equal legal force and be applicable to all countries in the period after 2020. This was an important step beyond the previous legal agreement, the Kyoto Protocol, whose core obligations applied to developed countries, not to China, India, Brazil or other emerging countries. The 2015 climate conference is slated to play a critical role in defining a post-2020 trajectory. We will be seeking an agreement that is ambitious, inclusive and flexible. It needs to be ambitious to meet the scale of the challenge facing us. It needs to be inclusive because there is no way to meet that challenge unless all countries step up and play their part. And it needs to be flexible because there are many differently situated parties with their own needs and imperatives, and those differences will have to be accommodated in smart, practical ways.

At the same time as we work toward this outcome in the UNFCCC context, we are making progress in a variety of other important negotiations as well. At the Montreal Protocol, we are leading efforts in support of an amendment that would phase down HFCs; at the International Maritime Organization, we have agreed to and are now implementing the first-ever sector-wide, internationally applicable energy efficiency standards; and at the International Civil Aviation Organization, we have ambitious aspirational emissions and energy efficiency targets and are working towards agreement to develop a comprehensive global approach.